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39, 41, 47, 60, 61, 70, 71, 72, 76, 78, 80, 88, 89, 99, 110, 116, 122-127, 129 and 130 have been amended. In addition, claims 131-147 have been added. Entry of the above amendments and new claims, and reconsideration of the application in view of those amendments and the interview conducted with Examiner Philip Niland on May 29, 1997, is respectfully requested.

It is respectfully submitted that the above amendments are proper for entry under 37 CFR 1.116(b) since they are believed to be necessary to place this case in condition for allowance and could not be made until a full understanding of the Examiner's position was obtained during the interview conducted May 29, 1997. Although certain of the amendments set forth above were proposed during the interview, the discussions in the interview, as summarized below, are believed to have clarified the Examiner's understanding of the invention and determined a basis for modifying the amended claims to the form shown above to conform with a definition of the allowable subject matter acknowledged by the Examiner during the interview. Accordingly, these amendments are necessary to place this application in condition for allowance and could not have been made earlier prior to the interview. Therefore, entry and full consideration of these amendments is respectfully requested.

The undersigned counsel for Applicant and Applicant's representative, Dr. Niall R. Lynam, Senior Vice President and Chief Technical Officer of the Assignee of the present application, namely, Donnelly Corporation of Holland, Michigan, wish to sincerely thank the Examiner for the courtesies extended and the helpfulness provided by the Examiner during the interview. During the interview, Dr. Lynam described the status of the prior art

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window assemblies for vehicles prior to the present invention as exemplified by a physical sample of a Ford Windstar van side window assembly, which was shown and exhibited during the interview. The photographs included in attached Exhibit A illustrate such a Ford Windstar van window assembly as installed on the van and as manufactured prior to assembly with the vehicle. As noted in the interview, the Windstar assembly includes a front, three-sided hinge which wraps around the front edge of the window assembly to form a mechanical joint to retain the window in the van but is exposed on the exterior side of the window as shown in the photographs. In addition, the Windstar window assembly has a hole drilled in its rear portion through which a fastener is placed to secure a latch near the rear edge of the window. Again, such fastener is exposed on the exterior side of the window.

In addition, during the interview, Dr. Lynam also exhibited a sample of a window assembly such as that shown in Figs. 3 and 4 of the present application which includes a load-bearing attachment member adhered by a rapid set, rapid cure, two-component urethane adhesive disposed between a first surface of the glass panel and the attachment member for bonding the attachment member to the glass panel without exposure of the attachment member on the opposed second surface of the panel. The photographs included in the attached Exhibit B illustrate the window assembly of the present invention exhibited during the interview, both as manufactured and as installed in a Chrysler MiniVan. In addition, in the interview, Dr. Lynam exhibited a video tape of the manufacturing process for producing the inventive window assembly shown in Exhibit B. A million units of the window assembly shown in Exhibit B have manufactured and sold to Chrysler for installation in such MiniVans. Further, the prior art cited and mentioned in the Office Action was

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discussed, along with United States Patent 5,551,197 (copy attached) which is assigned to the same assignee as the present invention and was copending with but issued after the filing of the present application on September 3, 1996. U.S. 5,551,197 relates to other aspects of the window assembly shown in Exhibit B. A PTO-1449 form listing this patent is attached so that the Examiner can indicate his consideration thereof as mentioned during the interview. Alternately, the Examiner is requested to cite U.S. 5,551,197 of record.

At the conclusion of the interview, the Examiner stated that he felt the subject matter of the inventive window assembly shown and discussed during the interview was patentable and suggested that the Applicant submit appropriate amendments in the claims to exclude attachment members on the non-adhesive side of the glass panel and to exclude mechanical attachment members extending through the glass as are conventionally used in vehicle windows. The present amendments are submitted in keeping with the discussions in the interview. As set forth below, it is respectfully submitted that these claims, as amended, are allowable over all of the art of record, including U.S. 5,551,197.

As mentioned during the interview, the present amendments clarify Applicant's invention and define a vehicle window assembly as well as a method for manufacturing a vehicle window assembly including a glass panel or substrate, a load-bearing attachment member bonded to the glass panel or substrate by a layer of rapid set, rapid cure, two-component urethane adhesive disposed between a first surface of the glass panel or substrate and the attachment member, the urethane adhesive having a rapid set characteristic and rapid cure characteristic and bonding the attachment member to the glass panel or substrate without exposure of the load-bearing attachment member on the opposing second

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surface of the panel. In each of the independent claims 1, 18, 41, 47, 70, 71, 88, and newly added claim 131, the load-bearing attachment member is variously defined as being selected from a group of attachment members as set forth in those claims. Claim 110 includes a modified list of attachment members selected from the group consisting of mounting components, hinges, clevises, latches, lift brackets, division bars, guide tracks, handles, guide pins, strut mounting hardware, strikers, brake lights, power mounting hardware, rails, gaskets, antennas, wiper mounts, cosmetic articles and rearview mirrors. Further, independent claims 89, 123, 124, 125, and 126 do not include a list of load-bearing members but mention one variety of attachment members. For example, claim 89 defines a hinged vehicle window assembly with a hinged mounting member. Claim 123 defines positionable sunroof with a load-bearing hinge attachment component. Claim 124 defines movable door lift window assembly with a load-bearing lift bracket attachment. Claim 125 defines a liftgate window assembly with a load-bearing hinge attachment member. Claim 126 defines a sliding window assembly with a guide track.

In addition, independent claims 1, 18, 71, 110, 123, 124, 125, and 126, as amended, define the rapid set characteristic such that the two-component urethane adhesive achieves a set within a time period of about 3 minutes or less from the time of initial disposition of the adhesive between the glass panel or substrate and the attachment member, and wherein the rapid cure characteristic is such that the adhesive cures in a time period of less than about 60 minutes from the time of adhesive set.

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Claim 41, as amended, defines the two-component urethane as comprising an isocyanate component and a polyol component wherein the adhesive further includes an amine based catalyst and achieves a set within about 3 minutes.

Claims 47 and 70, as amended, define a method for forming a bonded vehicular assembly including the provision of a rapid set, rapid cure, two-component urethane adhesive with the positioning being achieved within about 3 minutes of the adhesive depositing step.

Claim 88, as amended, defines an isocyanate component and a polyol component for the rapid set, rapid cure, two-component urethane adhesive wherein the adhesive is capable upon curing to form a bond that can withstand a tensile force of at least 5 pounds per square inch and achieve a set within a time period of about three minutes or less and includes an amine catalyst.

Claim 89, as amended, defines a rapid set, rapid cure, two-component urethane adhesive having a cure time within about 60 minutes or less.

New claim 131 includes a definition of the two-component urethane adhesive as being mixture of isocyanate component and polyol component with a rapid set characteristic such that, after mixing of the two components, and after promptly contacting the attachment member with the layer of adhesive and the first surface of the glass panel, the adhesive sets such that the attachment member and glass panel are held by the adhesive against movement resulting from the weight of the attachment member on the panel and the adhesive cures to bond the attachment member to the first surface of the glass panel within a

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time period of less than about 60 minutes from the adhesive set. New claims 131-147 are fully supported by the specification and no new matter has been added.

As explained previously of record, the dependent claims on the various independent claims further define the isocyanate and/or polyol components of the two-component urethane adhesive, or the inclusion of an adhesion promoter and a primer between the glass panel or layer of adhesive, or the use of a frit layer between the adhesive and the attachment member, as well as various specific forms for the vehicle window assembly. Dependent claims 14, 37, 39, 60, 61, 72, 76, 78, 80, 99, 116, 122, 127, 129 and 130 have been amended to be consistent with the amended language of the respective claims from which they depend.

As amended, the claims remaining in the application and new claims 131-147 are not disclosed, taught or suggested by the references of record including Repp et al. 5,551,197. The claims, as amended, clarify Applicant's invention and clearly distinguish the claimed invention from the prior art mechanical attachments such as holes through the glass panel, wraparound hinges, and like prior art, such as described at page 1, lines 17 to end and page 2, lines 1-9 of the present specification. Such prior art mechanical attachment of components to glass necessitates the use of a mounting member or fastener on the opposite side of the glass from which the component is placed. This is undesirable in terms of both cosmetic appeal, and resulting aerodynamics, if the mounting member or fastener projects from and/or is exposed on the exterior surface of the glass panel. See especially page 2, lines 4-7 of the specification.

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As noted in the Office Action, the Examiner has cited many references, some of which pertain to two-component and one-component polyurethane materials, but none of which, as far as can be ascertained, disclose or suggest the problem of load-bearing attachment members on glass panels or substrates, and none of which disclose Applicant's claimed invention which is a unique solution to the problem of mounting load-bearing attachment members to a glass panel or substrate as claimed herein without forming a hole in the glass, using a wraparound hinge, or the like, or without the excessive stresses characteristic of the prior art as noted on page 3 of the specification. While the references teach one-component and two-component polyurethane adhesives in general, or teach sliding windows as in pickup trucks, or set forth general connections between glass panes and gaskets or glass panes and edge rails, the references fail to result in a finding of Applicant's combination with its special adhesive characteristics combined with a load-bearing attachment member and glass panel where the adhesive bonds the attachment member to the glass panel or a frit layer on the glass substrate without exposure of the load-bearing attachment member on the opposite, second surface of the panel. Many of the references cited by the Examiner refer to single component urethanes which, as discussed in the present specification, such as in the Background of the Invention on pages 1-4 and the experimental testing results on pages 31-43, including in the accompanying tables and figures, show that single component urethanes do not obtain the objectives of the present invention. The rate of set and cure of prior known adhesives such as single component urethanes is significantly slower than the rapid set, rapid cure adhesive used in the present invention. As such, those references teach away from the present invention.

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More specifically, Ryan et al. 5,342,867 discloses an adhesive composition comprising a polyurethane resin and a specific adhesion promoter, one use of which is to bond automobile windscreens or headlamps in fixed positions on vehicles. This reference fails to disclose any rapid set, rapid cure two-component urethane adhesive bonding a load-bearing attachment member without exposure of the attachment member on the second, opposing surface of the panel as in Applicant's invention defined in the amended claims. Indeed, Ryan et al. '867 merely discloses prior art adhesives such as that described at page 3 of the specification.

Likewise, Sartelet et al. 5,238,767 fails to disclose Applicant's invention. Sartelet et al. '767 merely describes the fitting of glass in a window profile, not the attachment of a load-bearing attachment member to a substrate without exposure of the attachment member on the opposing second surface of a window assembly, as in Applicant's present invention.

Csokasy et al. SAE Paper 910758 discloses encapsulation concepts for RIM urethane on one side of an automobile window, not the use of a rapid set, rapid cure, urethane adhesive for a load-bearing structure as in the present invention.

Mulhaupt et al. '636 and Goel '672 relate to adhering one element to another with no specific structure being noted, especially as set forth in Applicant's amended claims.

Bravet et al. '655 discloses adhering glass into a vehicle, not the combination defined in Applicant's amended claims.



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Schurmann '666 relates to adhering parts to panel and does not include any disclosure of specific two-component, rapid set, rapid cure urethane adhesives as in Applicant's present invention.

Friese et al. '099 merely discloses a specific type of sliding window not the combinations of Applicant's amended claims herein.

Further, Kronbetter '168 and Jackson '984 merely disclose specific structures on windows, not the combination of elements defined by Applicant's invention. Specifically, Jackson '984 is an example of the prior art discussed in Applicant's background since it shows holes drilled through windows to receive fasteners such as that at 25 which are exposed on both sides of the window pane.

Similarly, the remaining references of record, including Repp et al. 5,551,197, fail to disclose the combinations of Applicant's present invention.

Accordingly, none of the references of record, including Repp et al. '197, teach, disclose or suggest the use of a two-component, rapid set, rapid cure, urethane adhesive for attaching a load-bearing member such as that defined in the various claims set forth above to a glass panel or substrate without exposure of the load-bearing member on the side of the glass panel or substrate opposite the side to which the component is applied providing the cosmetic appeal and resulting aerodynamic advantages of the present invention.

Accordingly, for the reasons expressed above, and during the interview conducted May 29, 1997, it is respectfully submitted that claims 1-4, 6-37, 39-74, 76-110, 112-130 and new claims 131-147 are allowable and a Notice of Allowance is earnestly and

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respectfully solicited therefor. Return of the attached PTO-1449 form indicating consideration of Repp et al. 5,551,197 is also respectfully requested.

Should the Examiner have any questions or need further information or wish to further discuss this Response or the above amendments, he is respectfully requested to telephone counsel for Applicant at the address and number listed below.

Respectfully submitted,

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